REMARKS

This paper is responsive to the Non-Final Office Action dated September 12, 2007, followed by the Notice of Non-Compliant Amendment dated April 23, 2008. Claims 1-45 were and remain pending. Claims 1, 5, 16, 20, 31 and 35 have been amended to further clarify the invention.

Rejection under 35 U.S.C. 102(b)

Claims 1, 2, 4, 5, 16, 17, 19, 20, 31, 32, 34, and 35 were rejected under 35 U.S.C. 102(b) as being unpatentable over Roy (U.S. Patent No. 6,046,763). This rejection is respectfully traversed.

Claim 1

Claim 1 as amended recites:

A method comprising:
computing a minimum cost path in a stereo disparity model between a scan line of a first image and a corresponding scan line of a second image of a stereo image pair, the stereo disparity model distinguishing between non-fronto-parallel matched pixels in each scan line and occluded pixels in each scan line, the computing comprising using a three-layer graph for dynamic programming.
(Emphasis added).

Roy, however, discusses using maximum-flow estimation without concern for epipolar lines. (Col. 1 lines 49-52, Emphasis added).

Roy uses maximum-flow analysis rather than minimum cost analysis. While these two approaches may end with the same result in some circumstances, they are not the same. Costs may not always equate to flow capabilities. Focusing on one approach rather than the other may lead to differing optimizations. Roy does not teach computing a minimum cost path.

The Examiner states that "reg(u,v) is read as the non-fronto-parallel pixels" (page 2, second paragraph from bottom). Roy states "where reg(u,v) is a cost characterized by the absence of occlusion (i.e. regular)" (col 5, lines 53-54). Non-fronto-parallel pixels, however, refer to a surface that is substantially parallel to an axis connecting the left and right cameras. (p. 5, lines 16-18). Roy does not anticipate "distinguishing between non-fronto-parallel matched pixels in each scan line and occluded pixels in each scan line."

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

Roy does not anticipate "computing a minimum cost path in a stereo disparity model between a scan line of a first image and a corresponding scan line of a second image of a stereo image pair," "using a three-layer graph for dynamic programming," or "distinguishing between non-fronto-parallel matched pixels in each scan line and occluded pixels in each scan line." Accordingly, claim 1 is allowable over the cited reference and the rejection should be withdrawn.

Claims 2-15

Claims 2-15 depend from claim 1 and are allowable at least by virtue of that dependency. Accordingly, the rejection of these claims should also be withdrawn.

Claims 16 and 31

Claims 16 and 31have been amended to recite the same limitations as claim 1, "computing a **minimum cost path** in a stereo disparity model between a scan line of a first image and a corresponding scan line of a second image of a stereo image pair,"

using "a three-layer graph for dynamic programming," and "distinguishing between non-fronto-parallel matched pixels in each scan line and occluded pixels in each scan line." The argument distinguishing claim 1 from Roy also applies to claim 16 and to claim 31.

Claims 17-30 and 32-45

Claims 17-30 depend from claim 16 and are allowable at least by virtue of that dependency. Accordingly, the rejection of these claims should also be withdrawn.

Claims 32-45 depend from claim 31 and are allowable at least by virtue of that dependency. Accordingly, the rejection of these claims should also be withdrawn.

Rejection under 35 U.S.C. 103(a)

Claims 3, 18, and 33

Claims 3, 18, and 33 were rejected under U.S.C. 103(a) as being unpatentable over Roy ('763) as applied to claim 1, further in view of Chupeau (U.S. Patent No. 5,727,078).

As described above under the argument for claim 1, Roy does not anticipate "computing a minimum cost path in a stereo disparity model between a scan line of a first image and a corresponding scan line of a second image of a stereo image pair," "using a three-layer graph for dynamic programming," or "distinguishing between non-fronto-parallel matched pixels in each scan line and occluded pixels in each scan line." Chupeau does not remedy this deficiency.

Neither Roy and Chupeau disclose, either separately or in combination, "computing a minimum cost path in a stereo disparity model between a scan line of a first image and a corresponding scan line of a second image of a stereo image pair,"

"using a three-layer graph for dynamic programming," or "distinguishing between non-fronto-parallel matched pixels in each scan line and occluded pixels in each scan line." Accordingly, applicants submit that claims 3, 18, and 33 are not unpatentable over the combination of Roy and Chupeau under 35 U.S.C. §103(a), and withdrawal of the rejection and allowance of claims 3, 18, and 33 are respectfully requested.

Claims 6-10, 21-25, and 36-40

Claims 6-10, 21-25, and 36-40 were rejected under U.S.C. 103(a) as being unpatentable over Roy ('763) as applied to claim 1, further in view of Usami (U.S. Patent No. 4,982,438).

As described above under the argument for claim 1, Roy does not anticipate "computing a minimum cost path in a stereo disparity model between a scan line of a first image and a corresponding scan line of a second image of a stereo image pair," "using a three-layer graph for dynamic programming," or "distinguishing between non-fronto-parallel matched pixels in each scan line and occluded pixels in each scan line." Usami does not remedy this deficiency.

Neither Roy and Usami disclose, either separately or in combination, "computing a minimum cost path in a stereo disparity model between a scan line of a first image and a corresponding scan line of a second image of a stereo image pair," "using a three-layer graph for dynamic programming," or "distinguishing between non-fronto-parallel matched pixels in each scan line and occluded pixels in each scan line." Accordingly, applicants submit that claims 6-10, 21-25, and 36-40 are not unpatentable over the combination of Roy and Usami under 35 U.S.C. §103(a), and withdrawal of the rejection and allowance of claims 6-10, 21-25, and 36-40 are respectfully requested.

Type of Response: Amendment
Application Number: 10/681,007
Attorney Docket Number: 304561.01
Filing Date: 10/08/2003

Claims 11, 12, 14, 15, 26, 27, 29, 30, 41, 42, 44 and 45

Claims 11, 12, 14, 15, 26, 27, 29, 30, 41, 42, 44 and 45 were rejected under U.S.C. 103(a) as being unpatentable over Roy ('763) as applied to claim 1, further in view of Chen (U.S. Patent No. 6,556,704).

As described above under the argument for claim 1, Roy does not anticipate "computing a minimum cost path in a stereo disparity model between a scan line of a first image and a corresponding scan line of a second image of a stereo image pair," "using a three-layer graph for dynamic programming," or "distinguishing between non-fronto-parallel matched pixels in each scan line and occluded pixels in each scan line." Chen does not remedy this deficiency.

Neither Roy and Chen disclose, either separately or in combination, "computing a minimum cost path in a stereo disparity model between a scan line of a first image and a corresponding scan line of a second image of a stereo image pair," "using a three-layer graph for dynamic programming," or "distinguishing between non-fronto-parallel matched pixels in each scan line and occluded pixels in each scan line." Accordingly, applicants submit that claims 11, 12, 14, 15, 26, 27, 29, 30, 41, 42, 44 and 45 are not unpatentable over the combination of Roy and Chen under 35 U.S.C. §103(a), and withdrawal of the rejection and allowance of claims 11, 12, 14, 15, 26, 27, 29, 30, 41, 42, 44 and 45 are respectfully requested.

Claims 13, 28, and 43

Claims 13, 28, and 43 were rejected under U.S.C. 103(a) as being unpatentable over Roy ('763) as applied to claim 1, further in view of Anandan (U.S. Patent No. 6,198,852).

As described above under the argument for claim 1, Roy does not anticipate "computing a minimum cost path in a stereo disparity model between a scan line of a

first image and a corresponding scan line of a second image of a stereo image pair,"
"using a three-layer graph for dynamic programming," or "distinguishing between non-
fronto-parallel matched pixels in each scan line and occluded pixels in each scan line."
Anandan does not remedy this deficiency.

Neither Roy and Anandan disclose, either separately or in combination,
"computing a minimum cost path in a stereo disparity model between a scan line of a
first image and a corresponding scan line of a second image of a stereo image pair,"
"using a three-layer graph for dynamic programming," or "distinguishing between non-
fronto-parallel matched pixels in each scan line and occluded pixels in each scan line."
Accordingly, applicants submit that claims 13, 28, and 43 are not unpatentable over the
combination of Roy and Anandan under 35 U.S.C. §103(a), and withdrawal of the
rejection and allowance of claims 13, 28, and 43 are respectfully requested.

CONCLUSION

Accordingly, in view of the above amendment and remarks it is submitted that
the claims are patentably distinct over the prior art and that all the rejections to the
claims have been overcome. Reconsideration and reexamination of the above
Application is requested. Based on the foregoing, Applicants respectfully requests that
the pending claims be allowed, and that a timely Notice of Allowance be issued in this
case. If the Examiner believes, after this amendment, that the application is not in
condition for allowance, the Examiner is requested to call the Applicant's attorney at the
telephone number listed below.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicants hereby request any necessary extension of time. If there is a fee occasioned by this response, including an extension fee that is not covered by an enclosed check please charge any deficiency to Deposit Account No. 50-0463.

Respectfully submitted,

Microsoft Corporation

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(Under 37 CFR § 1.8(a)) or ELECTRONIC FILING

I hereby certify that this correspondence is being electronically deposited with the USPTO via EFS-Web on the date shown below:

May 8, 2008   /Noemi Tovar/
Date   Noemi Tovar

Type of Response: Amendment
Application Number: 10/681,007
Attorney Docket Number: 304561.01
Filing Date: 10/08/2003